

## CLAIMS

We claim:

- 5 1. A biochip cartridge comprising:
  - a) a reaction chamber comprising:
    - i) a substrate comprising an array of electrodes, each comprising:
      - 15 A) a self-assembled monolayer; and
      - B) a capture binding ligand;
    - 20 II) an inlet port for the introduction of reagents; and
  - b) interconnects to allow the electrical connection of said electrodes to a processor.
2. A biochip cartridge according to claim 1 wherein said capture binding ligands are capture probes.
- 15 3. A biochip cartridge according to claim 1 wherein said reaction chamber further comprises a gasket to retain fluid in contact with said array.
4. A biochip cartridge according to claim 1 further comprising a seal on said inlet port.
- 20 5. A biochip cartridge according to claim 1 wherein said reaction chamber further comprises an outlet port.
6. A biochip cartridge according to claim 1 wherein said reaction chamber is configured to minimize the introduction or retention of air bubbles upon introduction of a sample.
- 25 7. A biochip cartridge according to claim 1 wherein said array is on one surface of said substrate.
8. A biochip cartridge according to claim 1 wherein two surfaces of said substrate each comprise an array.
- 30 9. A biochip cartridge according to claim 1 further comprising a cap comprising at least one storage well comprising assay reagents.
10. A device for multiple biochip analysis comprising at least two stations configured to receive a biochip cartridge.
- 35 11. A device according to claim 10 wherein at least one station comprises a thermocontroller.
12. A device according to claim 10 wherein every station comprises a thermocontroller.

13. A device according to claim 10 wherein at least one station comprises a signalling system.
14. A device according to claim 10 wherein at least one station comprises a memory chip reader.
- 5 15. A device according to claim 10 wherein at least one station comprises a barcode reader.
16. A device according to claim 10 wherein at least one station comprises a memory chip writer.
17. A device according to claim 10 wherein at least one station comprises an encryption system.
- 10 18. A device according to claim 10 further comprising at least two biochip cartridges.
19. A device according to claim 10 further comprising a liquid handling system.
- 15 20. A device according to claim 10 further comprising a wireless communication component.
21. A device according to claim 10 further comprising a device board.
22. A device according to claim 10 further comprising a processor.
- 20 23. A device according to claim 10 further comprising a global positioning system.